

Work Order ID 143591 - 2

143591

Page 1

Wednesday, March 16, 2016 2:20:42 PM

Item ID: D4857-M

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Wiper Deflector

Stop *NS2*

Start Date: 3/16/2016 Start Qty: 10.00

Required Date: 3/25/2016 Req'd Qty: 10.00

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D4857	F								

100 0.00

100

Purchasing

Purchasing

Memo

Issue P/O:

Possible supplier: CARBON BY DESIGN

Manufacture as per dwg D4857-M

Prime Deflector as per dwg (SEE NOTE 4)

Certificate of Conformity release note is required.

110

Receive & Inspect for Damage & Mat'l Certs

0.00

110

Packaging

Packaging

Memo

0.00

u 16-03-16 11

5x split - 2-6

Work Order ID 143591***143591***

Page 2

Wednesday, March 16, 2016 2:20:42 PM

Item ID: D4857-M Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Wiper Deflector
Start Date: 3/16/2016 Start Qty: 10.00 ***10*** Cust Item ID:
Required Date: 4/25/2016 Req'd Qty: 10.00 ***10*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00				5			DAS 38 3-88 FEB 07 2017
130 *130* Packaging Packaging	Identify as per dwg & Stock Location 5136A Memo	0.00 0.00				5			DAS 6 9-89 FEB 08 2017
140 *140* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.02							17/2/9 JF FEB 09 2017

Picklist Print

Wednesday, March 16, 2016 2:20:41 PM

Page 1

Work Order ID: 143591

143591

Parent Item: D4857-M

D4857-M

Parent Item Name: Wiper Deflector

Start Date: 3/16/2016

Required Date: 4/25/2016

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP REV:A 14.05.21 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D4857-P

Purchased

No

Each

5.0000

10

D4857-P

Wiper Deflector

Location

Loc Qty

Loc Code

ST

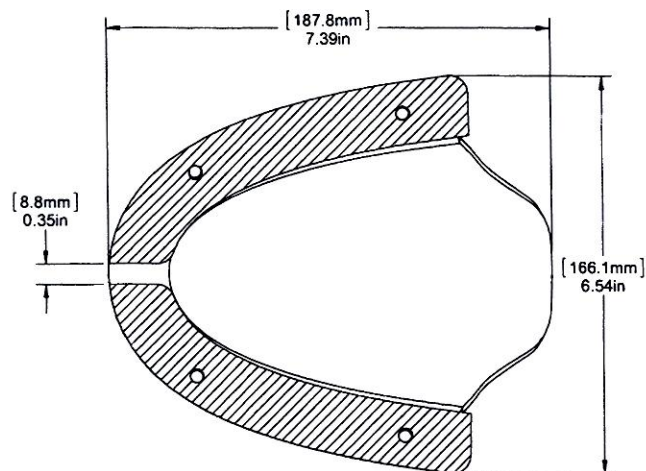
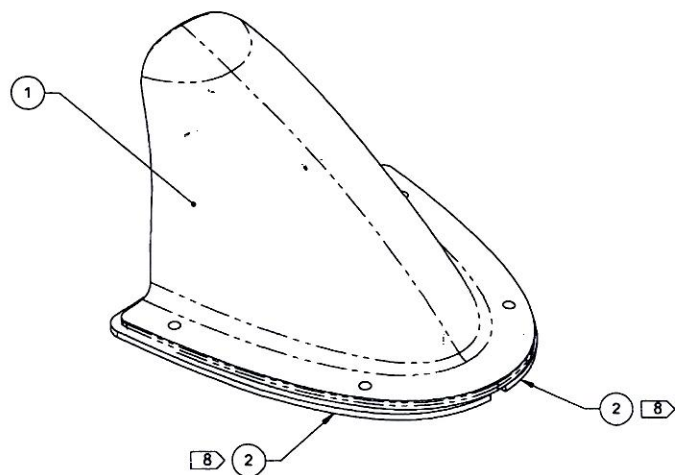
5

m140559

5

5x.
SP 17-02-6

ITEM	QTY -041	P/N	DESCRIPTION
	X	D4857-041	WIPER DEFLECTOR ASSY
1	1	D4857-1	WIPER DEFLECTOR
2	2	D4944-1	GASKET



D4857-041 WIPER DEFLECTOR ASSY $\triangle$

RELEASED

2015 JUN 08

ECN 15-582 *an*

W6143584

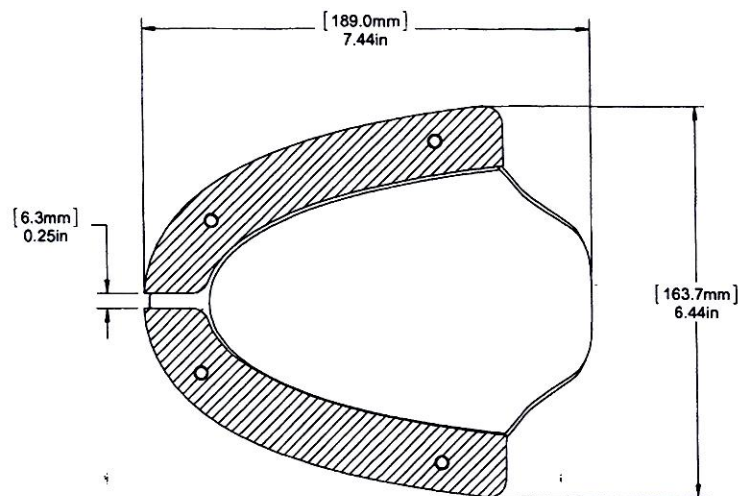
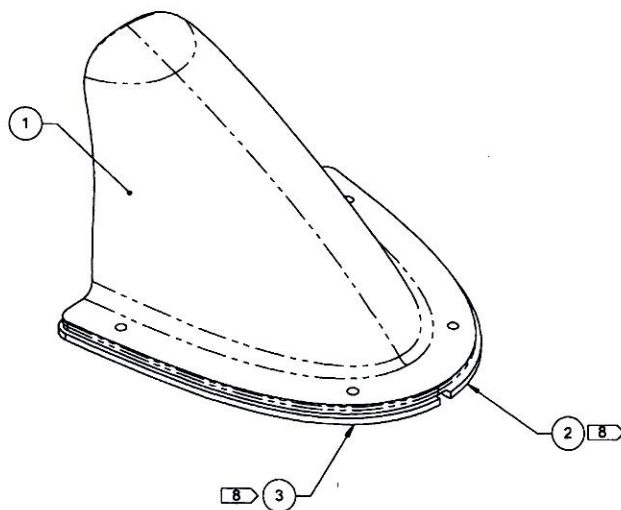
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N D4857-041, REVISION, BATCH NUMBER, AND DATE OF MANUFACTURE, AS PER QSI 044 METHOD 6.1
- 7) WEIGHT: 0.38 lbs (0.17 kg)
- 8) BOND D4944-1 GASKETS TO EDGE OF PART USING DOW CORNING 736 ADHESIVE

F	SHT 1 ADDED -041. ADDED D4857-2M (SHEET 8) AND RELABELED D4857-M TO D4857-1M (ZN B5-7). UPDATED D4757-044 (ZN B5-3). REVISED NOTES 1, 8 AND 10 (ZN A8-4, ZN A8-5, ZN A8-6, ZN A8-7, ZN A8-8). UPDATE PART WEIGHTS	AK / AJS	15.06.03
E	REVISE NOTE 6) (ZN A8-1, A8-2, A8-3); AND NOTE 8) (ZN A8-1, A8-2, A8-3)	AK	14.06.05
D	ADDED D4857-043 (ZN C7-1), D4857-044 (ZN C7-2), D4857-3 (ZN C7-4), D4857-4 (ZN C7-5) AND D4857-M (ZN C7-6)	AK	14.05.13
C	ADDED 4 MOUNTING HOLES	DW	13.12.09
B	REVISED BOM, DRAWING VIEWS, NOTES	PB	13.08.13
A	NEW RELEASE	DB	13.05.23
REV	DESCRIPTION	BY	DATE
DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 1 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
DATE	15.06.03	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

APPROVED

ITEM	QTY -043	P/N	DESCRIPTION
	X	D4857-043	WIPER DEFLECTOR ASSEMBLY, LH
1	1	D4857-3	WIPER DEFLECTOR LH
2	1	D5117-1	GASKET
3	1	D5117-3	GASKET



D4857-043 WIPER DEFLECTOR ASSEMBLY, LH

RELEASED

2015 JUN 08

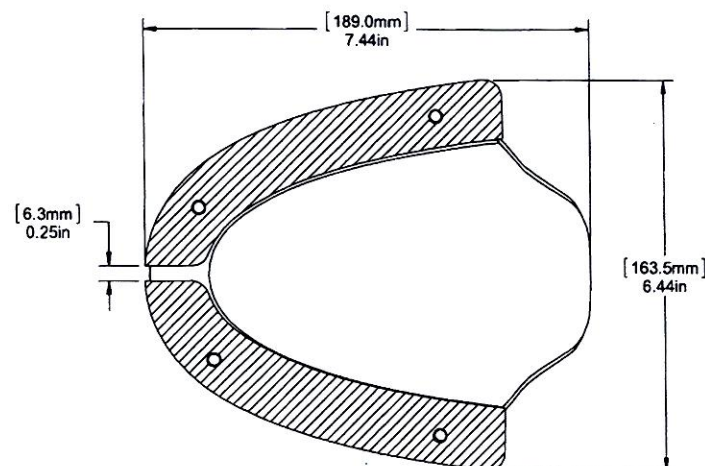
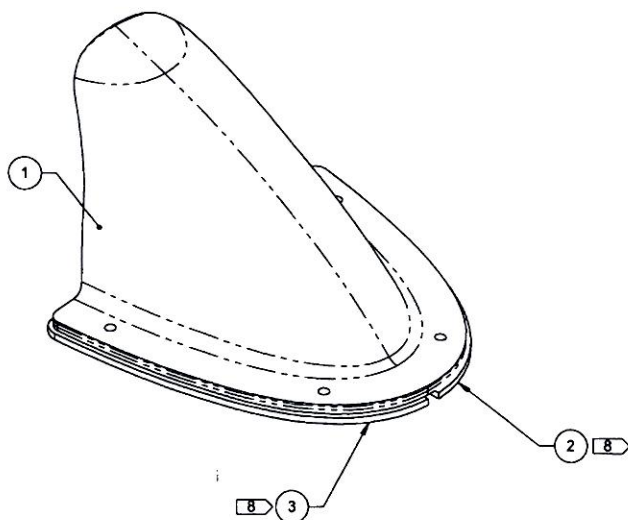
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N D4857-043, REVISION, BATCH NUMBER, AND DATE OF MANUFACTURE, AS PER QSI 044 METHOD 6.1
- 7) WEIGHT: 0.38 lbs (0.17 kg)
- 8) BOND D5117-1/-3 GASKETS TO EDGE OF PART USING DOW CORNING 736 ADHESIVE

APPROVED

DESIGN		DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 2 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
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ITEM	QTY -044	P/N	DESCRIPTION
	X	D4857-044	WIPER DEFLECTOR ASSEMBLY, RH
1	1	D4857-4	WIPER DEFLECTOR
2	1	D5117-5	GASKET
3	1	D5117-7	GASKET



D4857-044 WIPER DEFLECTOR ASSEMBLY, RH

RELEASED

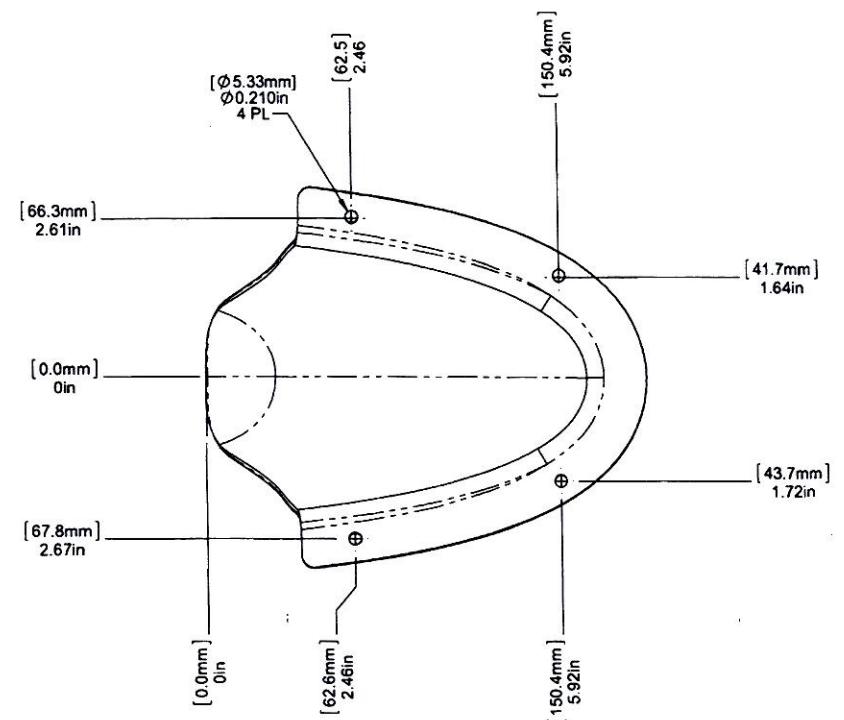
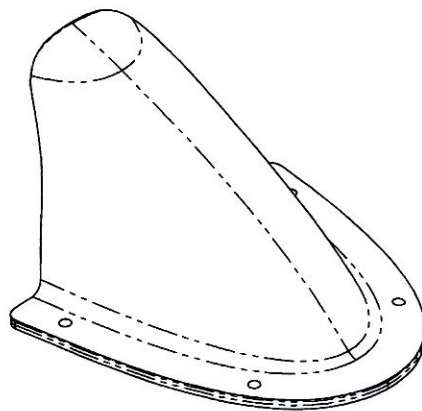
2015 JUN 08

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N D4857-044, REVISION, BATCH NUMBER, AND DATE OF MANUFACTURE, AS PER QSI 044 METHOD 6.1
- 7) WEIGHT: 0.38 lbs (0.17 kg)
- 8) BOND D5117-5/-7 GASKETS TO EDGE OF PART USING DOW CORNING 736 ADHESIVE

APPROVED

DESIGN	DW	DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 3 OF 8
APPROVED	WM	TITLE	SCALE
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D4857-1 WIPER DEFLECTOR

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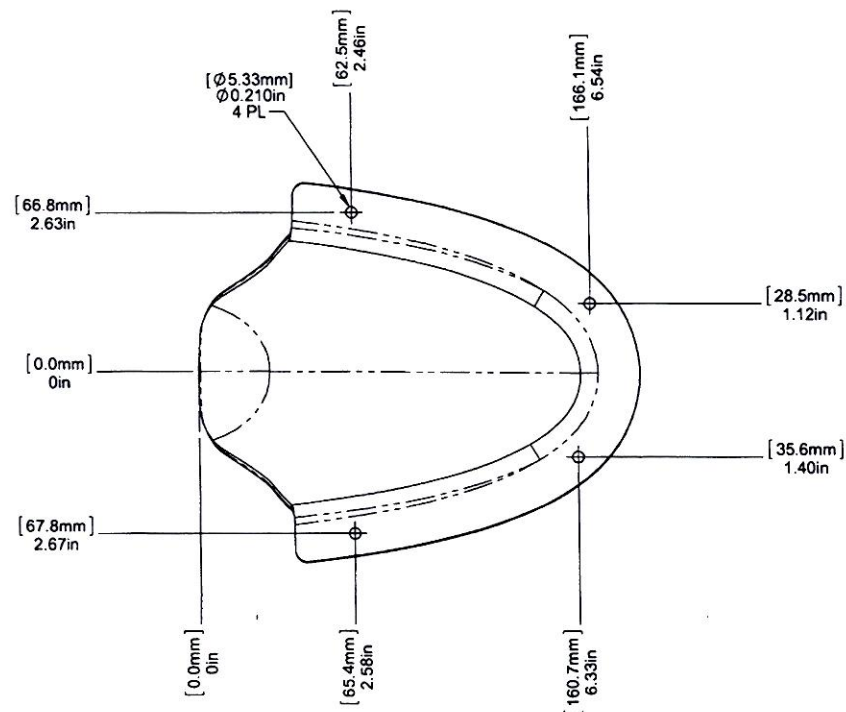
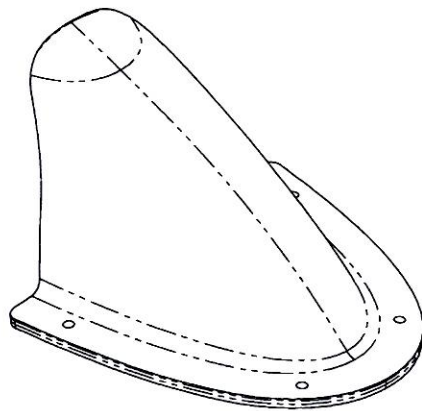
2015 JUN 08

NOTES:

- 1) MATERIAL: MADE FROM D4857-M
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.35 lbs (0.16 kg)
- 8) PART DIMENSIONS CONTROLLED BY CAD MODEL FILE D4857-1-F.IGES

APPROVED

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DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 4 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
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D4857-3 WIPER DEFLECTOR, LH

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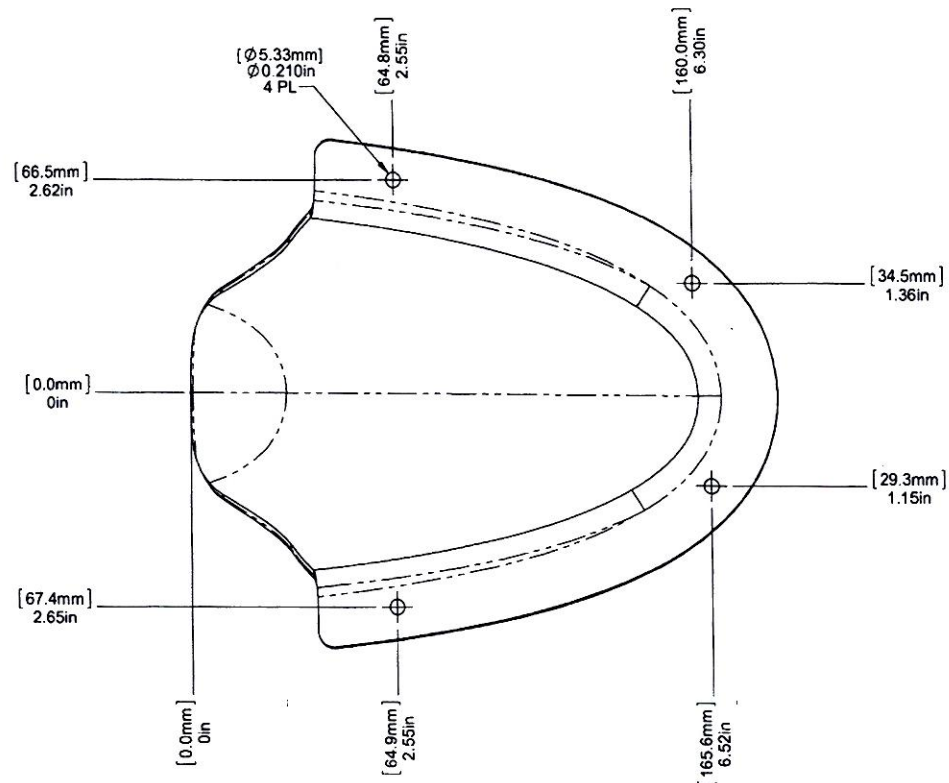
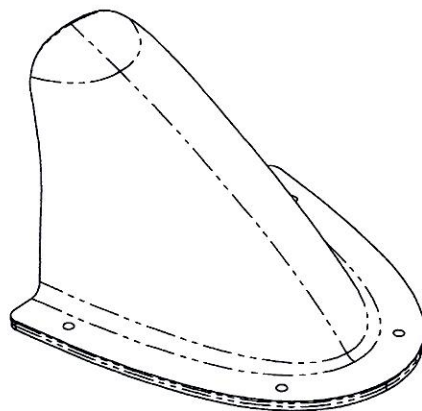
CR

NOTES:

- 1) MATERIAL: MADE FROM D4857-M
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.35 lbs (0.16 kg)
- 8) PART DIMENSIONS CONTROLLED BY CAD MODEL FILE D4857-3-F.IGES

APPROVED

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 5 OF 8
APPROVED	WM	TITLE	SCALE
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D4857-4 WIPER DEFLECTOR, RH

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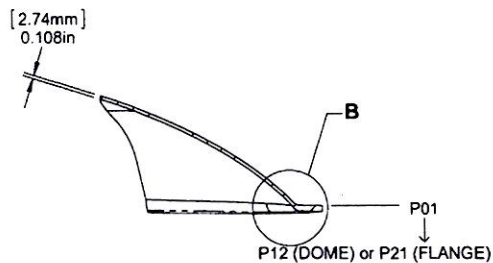
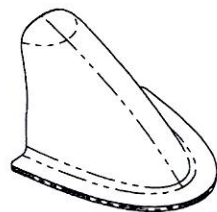
2015 JUN 08

NOTES:

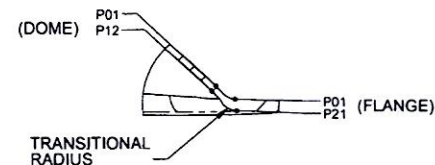
- 1) MATERIAL: MADE FROM D4857-M
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.35 lbs (0.16 kg)
- 8) PART DIMENSIONS CONTROLLED BY CAD MODEL FILE D4857-4-F.IGES

APPROVED

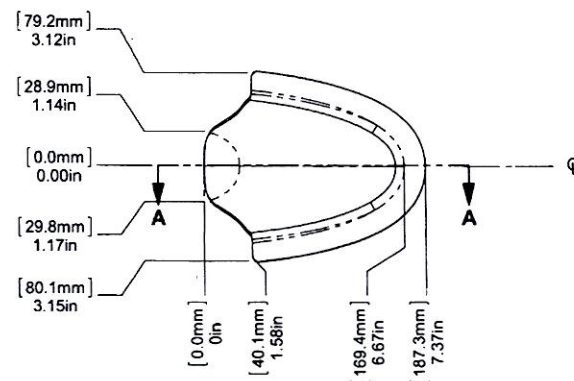
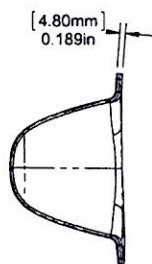
DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 6 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
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SECTION A-A



DETAIL B



D4857-M WIPER DEFLECTOR

RELEASED

2015 JUN 08

NOTES:

- ① MATERIAL: KEVLAR #285/353 4H SATIN, EPOXY PREPREG, 250°F CURE, 40% R/C
- ② MATERIAL: CARBON FIBER PREPREG, ALDILA PREPREG SYSTEM 3K2X2-FR250-204/40 T300,
- ③ MATERIAL: ALDILA #120 E-GLASS AR250 WITH 48% RC;
- 4) FINISH: PRIMER IAW MIL-P-85582, 2-7 MIL MAX,
- 5) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) UNITS: INCHES UNLESS OTHERWISE NOTED, ALL METRIC DIMENSIONS ARE REFERENCE DIMENSIONS.
- 7) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 8) IDENTIFICATION: N/A
- 9) WEIGHT: 0.35 lbs (0.16 kg)
- 10) PART DIMENSIONS CONTROLLED BY CAD MODEL FILE D4857-M-F.IGES
- 11) SEE SHEET 8 FOR LAYUP SCHEDULE. MANUFACTURE IAW MPP 145. CURE 250°F FOR 4 HOURS.

APPROVED

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	CP	DRAWING NO.	REV. F
MFG. APPR.	DD	D4857	SHEET 7 OF 8
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	WIPER DEFLECTOR	NTS
DATE	15.06.03	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

PLY	WARP ANGLE	MATERIAL	THICKNESS
01	90	[1]	.008-.010
02	0	[1]	.008-.010
03	90	[2]	.008-.010
04	0	[2]	.008-.010
05	90	[2]	.008-.010
06	0	[2]	.008-.010
07	90	[2]	.008-.010
08	0	[2]	.008-.010
09	90	[2]	.008-.010
10	0	[2]	.008-.010
11	90	[2]	.008-.010
12	0	[2]	.008-.010

LAMINATE - .108in (12 LAYERS)

P 01 →
P 02 →
P 03 →
P 04 →
P 05 →
P 06 →
P 07 →
P 08 →
P 09 →
P 10 →
P 11 →
P 12 →

PLY	WARP ANGLE	MATERIAL	THICKNESS
01	90	[1]	.008-.010
02	0	[1]	.008-.010
03	90	[2]	.008-.010
04	0	[2]	.008-.010
05	90	[2]	.008-.010
06	0	[2]	.008-.010
07	90	[2]	.008-.010
08	0	[2]	.008-.010
09	90	[2]	.008-.010
10	0	[2]	.008-.010
11	90	[2]	.008-.010
12	0	[2]	.008-.010
13	90	[2]	.008-.010
14	0	[2]	.008-.010
15	90	[2]	.008-.010
16	0	[2]	.008-.010
17	90	[2]	.008-.010
18	0	[2]	.008-.010
19	90	[2]	.008-.010
20	0	[2]	.008-.010
21	90	[3]	.005

LAMINATE - .189in (21 LAYERS)

LAYOUT OF LAYERS (FLANGE)

P 01 →
P 02 →
P 03 →
P 04 →
P 05 →
P 06 →
P 07 →
P 08 →
P 08 →
P 10 →
P 11 →
P 12 →
P 13 →
P 14 →
P 15 →
P 16 →
P 17 →
P 18 →
P 19 →
P 20 →
P 21 →

APPROVED

DESIGN	DW	CHECKED	CP	DRAWING NO.	D4857	REV. F	SHEET 8 OF 8	SCALE	NTS
DRAWN	AJS	MFG. APPR.	DD	DATE	15.06.03	WIPER DEFLECTOR			
DE APPR.	DS								

RELEASED
2015 JUN 08



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

Purchase Order ID PO31722

Purchase Order Date 3/16/2016
PO Print Date 6/29/2016

Page Number 1 of 2

Order From :

FDC COMPOSITES INC.
45 CHEMIN DE L'AEROPORT
LOCAL 26
ST. JEAN SUR RICHELIEU, QUEBEC J3B 7B5

VU-FDC001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

E-MAILED

Contact Name
Vendor Phone 450-357-1344 Ext 303

Ship To Contact
Ship To Phone
Ship Via: To Be Announced
Ship Acct:

Buyer Linda Lacelle
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency USD
FOB Destination-Collect

JUN 29 2016

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	D4857-P	Wiper Deflector	8/30/2016 Yes 8/30/2016	FN	11.00 Each	\$775.00	\$

MANUFACTURE PER DRWG D4857-M REV.F
PRIME DEFLECTOR PER DRWG(SEE NOTE 4)
B143590

Rec'd 1x SP16-10-2-11
SP17-01-1k
Rec'd 10x SP17-01-1k
Line Total: \$8,525.00

2 D4857-P Wiper Deflector

DAS
38
9-89

10/20/2016 FN 11.00
Yes Each
10/20/2016

MANUFACTURE PER DRWG D4857-M REV.F
PRIME DEFLECTOR PER DRWG(SEE NOTE 4)
B143591

Rec'd 5x SP17-01-10
Line Total: \$8,525.00

→ Rec'd 5x SP17-02-6.

PO Instructions: QUOTE NO. 1294

Note:

6/29/2016

Shipping Order

02/02/2017

FDC Composites inc.
45, Chemin de L'Aéroport
Local 26
Saint-Jean-sur-Richelieu (QC)
J3B 7B5 Tel.: 450 357-1344

Order : 5770 Rev. B
Reference : PO #31722/2
Ship : FOB USINE FDC PLANT

Customer: DART US

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON
K6A 1K7

Ship To
Dart Aerospace LTD
1270 Aberdeen Street
Hawkesbury, ON
K6A 1K7 Tel.: 1 613 632-9577

Item No.	Description	Qty	Qty. Delivere	B/O Qty
D4857-P	Wiper Deflector	11		
	PO item: 31722/2			
	Lot: 2016-12-22			
	As per DRWG: D4857-M Rev. F			
	B143591			
	50% of 8 525.00\$ Net 30 days			
	Lot: 2017-01-04			
	Lot: 2017-01-04			
	Lot: 2017-01-05			
	Lot: 2017-01-05			
	FDC ID: DAE012-018 ✓			
	FDC ID: DAE012-019 ✓			
	FDC ID: DAE012-020 ✓			
	FDC ID: DAE012-021 ✓			
	FDC ID: DAE012-022 ✓			

Sq 7-02-6

Shipping : _____
Package No : _____
Merchandise Received: _____

Ref. : _____



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CERTIFICATE of CONFORMITY

Customer Name: Dart Aerospace.

Customer P/O Number: 31722

Revision: NC

<u>PO Item</u>	<u>Qty</u>	<u>Part number ID</u>	<u>Description</u>	<u>Dwg number ID</u>	<u>Delivery Number</u>	<u>FDC ID</u>	<u>Lot</u>
2	5 ✓	D4857-P ✓	Wiper Deflector	D4857-M Rev F	B143591	DAE012-018 ✓ DAE012-019 ✓ DAE012-020 ✓ DAE012-021 ✓ DAE012-022 ✓	2016-12-22 2017-01-04 2017-01-04 2017-01-05 2017-01-05

I hereby certify that the workmanship, material and the processes used in the manufacture of the above part(s) supplied are in accordance with the requirements of the applicable Purchase Order.

Signature: Marjorie G.
Marjorie Geoffrion, Quality Inspector

Date: 2017-02-02